E/CONF.39/D/68
9 Oct.1962
ORIGINAL : ENGLISH

UNITED NATIONS CONFERENCE
ON THE APPLICATION OF SCIENCE AND TECHNOLOGY
FOR THE BENEFIT OF THE LESS DEVELOPED AREAS

Agenda Item: D.4.2

Brazil

ESTABLISHMENT AND OPERATION OF A TROPICAL CENTER FOR THE STUDY OF FOOD TECHNOLOGY

By André TOSELLO,
Director of Soil, Farm Mechanic and Technology Division,
Instituto Agronômico de Campinas
Sao Paulo, Brazil

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Stablishment and operation of a "Tropical Centre for the Study of Food Technology in the Instituto Agronômico, Campinas.

By

André Tosello

Diretor of Soil, Farm Mechanic and Technology Division of the Instituto Agronômico-Campinas.

1.- Introduction

Brazil with its populatior 75 millions peuple must be supplied with 150 thouzands tons of food daily, both of animal and vegetable origin. In one year the total need amounts to 50 millions tons. Such an amount of food is produced in different regions of Country, for that rea - son it must be stored and preserved to distribuite it normaly true the year and some times more than one year. Furthermore, it must be conditioned for transportation from the places where they are produced to the places where they are consummed, involving oftenly large distances. In Brazil this aspect of transportation is specialy impor - tant if one considers that those distances are not only large but communications are partly defficient.

It is obvious that nowadays, as in the past, on could not supplie the population with fresh foods only; be it of animal or vegetable nature. One the contrary the food must be processed, involving since simple treatments to keep the food from deterioration to more complicated procedures, to turn the raw materials in condition to be absorved by the human organism.

In a few years the population of Brazil will increased to hundred millions; the urban population will be much bigger and the production aereas will be farther out. The farmer will have to produce enough food to supply an increased number of peuples. The economical implications will be in sense that the agricultural regions will develope into specialised activities. The increased volume of production will be attained in more proper season.

It means that the problems of food supply will be more serious and to solve them will be required more technical knowledges, specialy in the field of food technology.

2.- Importance of the food Industry in Brazil

Brazil's food industry has developed vigorously thro ugh private enterprise and has attained great economic importance. There are 9,943 registered food factories. The value of manufactured food production in recent years has amounted to 25% of that of Brazil's total industrial production; a highly significant fact in view of the coun try's advanced stage of industrialization.

This industry has exceptional prospects for future development because of the country's virtually inexhaustible sources of raw materials of both vegetable and ani mal origin; the need standardize and cheapen the food - supplies of populations far agricultural and livestock production centres; because the food-manufacturing plants are permanent markets for the growing agricultural output; because these could utilize the area's surplus production of some agricultural commodities which are now wasted, since they are perishable foods that are sold fresh during the harvesting season at extremely low prices; because low-cost manufactured products would, in short, make it possible to raise the nutritional level of the population, which woul necessarily have a favourable impact on national economic development.

It is therefore the Government's duty, at both Fede - ral and State level, to promote the rational development of the food inusties by planning their economic develop - ment, providing technical guidance and settling their pro blems which could not be properly solved at the level of private enterprise.

3.- Factors hindering their development

Notwithstanding the strong impetus of Brazil's food industries, there are innumerable factors hindering their full rational development, inter alia: the complete lack of comprehensive theoretical and practical courses, at both mediun and higher levels, in order to train efficient technicians to work in the food industries. This has compelled the food industries to bring technicians from other countries at huge expense; to provide rudimentary empirical training, or to send people for training abroad.

The food industries lack the necessary laboratory e- quipment and qualified researchers to solve their technical problems that require scientific research .

It is not easy for these industries to obtain technical advice concerning the purchase or new equipment, expen

sion of that already existing in their factories, processing of new products, utilization of by products, improvement of their manufactured products, rational reduction of production costs, etc., owing to the scarcity of eccessible sources of technological information, namely, specialized technicians, technical libraries or experience gained by other countries.

The commercial rivalry existing among food manufacturers, who jealously guard as "industrial secrets" the experience they have acquired and the improvements introduced in the manufacture of their products obstructs technical development and creates methods of commercial competition which are detrimental to the quality of the products.

The lack of proper technical guidance impels manufacturers to use poor-quality raw materials so as to lower production costs, which obviouslaalso has a detrimental effect on the quality of manufactured products. In Brazil this occurs in the case of milk, oranges and tomatoes.

There is an urgent need for food inspectors,not only trained to apply punitive measures, but also with the necessary technical knowledge to advise industries as to how their technical and sanitary errors can be avoided.

4.- Efforts made by the government of the State of S.Paulo

In 1959, the State Department of Agriculture of S. Paulo, under the administration of Dr. José Bonifácio Coutinho Nogueira, being jully aware of the imperative necessity of promoting the introduction of up-to-date techni - que in the food manufacturing industries and of encoura - ging their development to a level compatible with their buge potentialities, designed the autor to stud the sta - blishment and operation of a Tropical Center for the Study of Food Technology.

The autor with the help of a group of local food technologists and Dr.Sherman Leonard, Food Technologist of University of California, specialy contracted for this work, drew up the plans and specifications for the various buildings laboratories and industrial pilot plants in accordance with Brazil needs and requirements. This is made,after careful study of the State of S.Paulo's availabilities of raw materials and potentialities as food manufacturing area, indicated the Instituto Agronômico of Campinas,of the State of S.Paulo Departament of Agriculture, as the most suitable cite for a Tropical Centre for the Study of Food Technology.

The State of S.Paulo has attained the highest level of agricultural development in Brazil.

5.- Activities program of the Tropical Centre.

The Tropical Centre of Food Technology is stablished for the purpose of conducting applied research, training professional experts and technicians to work efficiently in both private and governmental activities and imparting knowledge about Food Science and Technology.

The activities of the Tropical Centre will be of a national charater, without losing sight of the regional interests, and will be oriented towards: improving industrial systems of manufacture and preservation of foods vegetable and animal origin; rationalizing their storage and transport; avoiding wast or spoilage of foodstuffs owing to poor handling or overproduction; developing new types of cheap food products with a connected with food storage, processing, preservation and transport at the different economic and social levels, and the introduction of up-to-date techniques. Its ultimate goal is to contribute to Brazil's economic development.

In order to comply with these aims, the Tropical Centre of Food Technology will have, the following responsibilities;

1.- Coordination and promotion of scientific and technological research on the transport, storage, processing and preservation of foods of vegetable and animal origin.

2.- Scientific and technological research to help the domestic food industry solve its specific practical problems.

3.- Development of new low-cost food resources with a high nutritive value (especially,rich in proteins),to help solve the nutrition problem of the low-income population.

4.- Research on the effects of processing on the nutritive value of foodstuffs.

5.- Study of the traditional methods of food preservation (drying, salting and fermenting)so as to improve the techniques currently in use, and their extension.

6.- Development of pratical means of avoiding food wastage and spoilage.

7.- Maintenance of an information service for carrying out technological extension, publishing results obtained by research and providing technical information to food manufacturing industries.

8.- Collaboration with University and Medium Level Education for the training of Food Technologists with the necessary scientific and technical background to work efficiently in the food industries and government industrial, inspection and control services.

9.- Holding of short practical courses to include elementary in the food manufacturing industries who have had only empiric training.

10.- Promotions, coordination and improvement of efforts by government, universities and private enterprises in favour of the development and improvement of the country's food industries.

11.- Practical extension of industrial techniques , throug objetives demonstrations in the various pilot plants and laboratories.

12.- Bacteriological, chemical, phisical, acceptability, nutritive and other analyses, for the purpose of reconmending in confidence to each individual manufacturer, apropriate technological measures to improve his manufactured products and, at the some time, suggesting to government (either Federal or State) general technical standards for a better food control.

13.- Development of analytical methods that may be applied to the study of tropical foods.

14.- Study of the use food industry waste wherever this is economical feasible.

15.- Exchange of experience and results obtained from research, with different national or foreign organizations concerned with Food Technology.

6.- Instalations and laboratories

The government of São Paulo allocated the sum of aproximately US$2.000.000,00 out of its Regular Budget for constrution of Buildings, equipaments and scientific aparats. For operating of the Centre, The Special Funds

of the United Nations Organization will provide part of the expentidures.

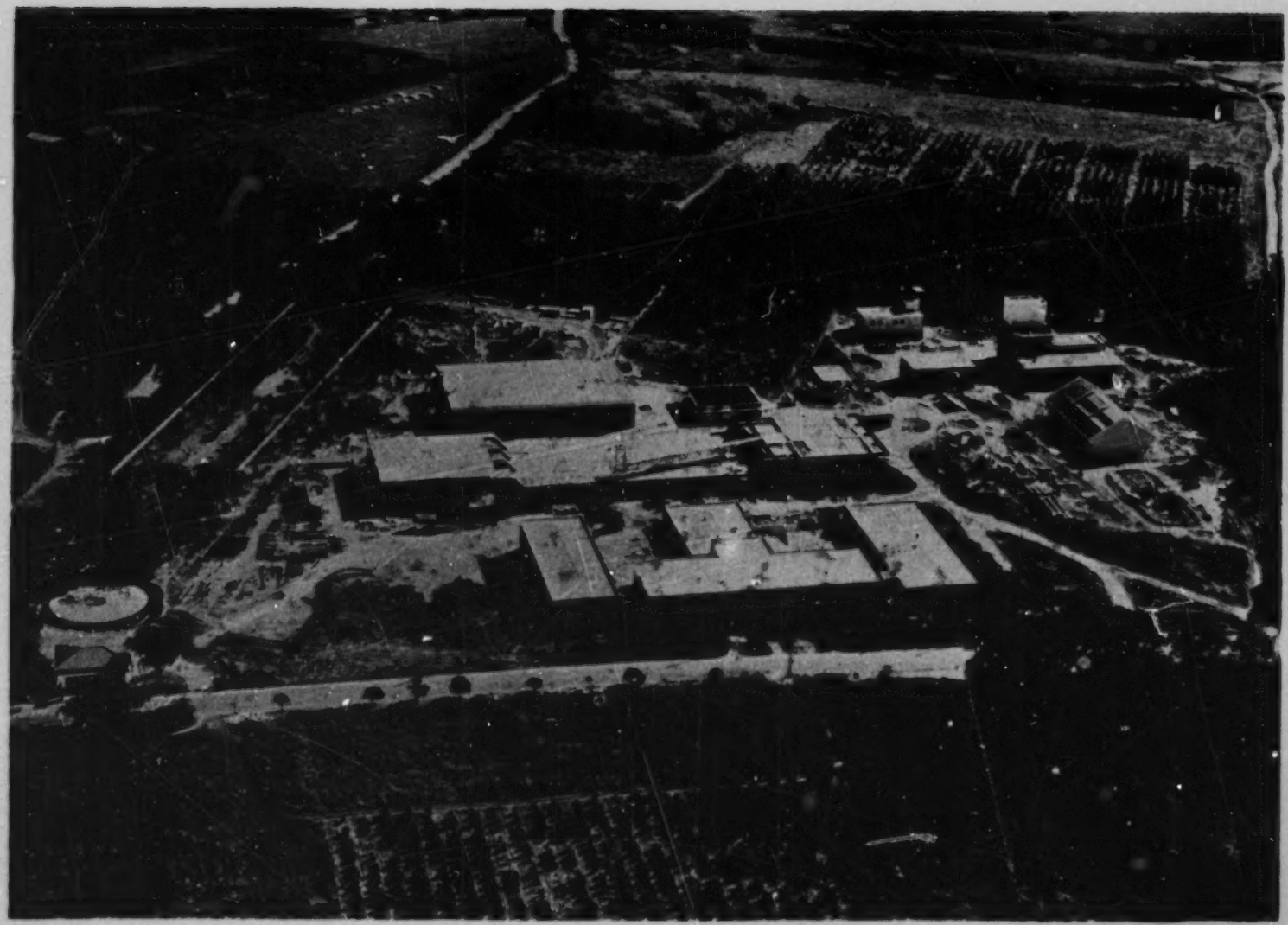
The Centre is located in a 65.000 square meter of land of the Instituto Agronômico - Estação Experimental "Theodureto de Camargo" - Campinas. Several Buildings are at present being ereted cover a total of 14.000 square meters, the constrution is almost completed.

This establisment, which will be the largest in South America devoted to research and technology connected with food of vegetable origin, will have the following pilot plants:- (1) canning, (2) Edible oils(Speller and solvent extraction), (3) Edible oil refining, (4) Fruit Juice Concentrates, (5) Refrigeration and Freezing, (6) Industrial Fermentation, (7) Grain ensilage, (8) Bakery, (9) Distillery of Alcohol used in Beverages.

It will also have following laboratories:-

Chemistry
Biochemistry
Microbiology
Engineering
Acceptability of Foodstuffs
Chromatography
Enzymology

The Food Technology Centre at Campinas will be an international Center for Tropical Food Technology research and also serve as a place for post graduate studies for technical men from other tropical countries.



Tropical Centre for the study of Food Technology in the Instituto Agronômico, Campinas

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